

## **AMENDMENTS TO THE CLAIMS:**

The following is a complete listing of the claims.

- 1.-41. (canceled)
42. (original) A nucleic acid sequence encoding a threonine deaminase protein effective to catalyze the conversion of threonine to  $\alpha$ -ketobutyrate, wherein:
- a. the encoded leucine residue at amino acid position 447 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine;
  - b. the encoded leucine residue at amino acid position 481 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine; or
  - c. the leucine residue at amino acid positions 447 and 481 are independently replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine.
43. (original) A recombinant vector comprising a nucleic acid sequence encoding a threonine deaminase protein effective to catalyze the conversion of threonine to  $\alpha$ -ketobutyrate, wherein:
- a. the encoded leucine residue at amino acid position 447 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine;
  - b. the encoded leucine residue at amino acid position 481 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine; or
  - c. the leucine residue at amino acid positions 447 and 481 are independently replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine.
44. (original) A recombinant host cell comprising a nucleic acid sequence encoding a threonine deaminase protein effective to catalyze the conversion of threonine to  $\alpha$ -ketobutyrate, wherein:
- a. the encoded leucine residue at amino acid position 447 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine;
  - b. the encoded leucine residue at amino acid position 481 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine; or

- c. the leucine residue at amino acid positions 447 and 481 are independently replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine.
45. (original) A method of preparing recombinant host cells useful to convert threonine to  $\alpha$ -ketobutyrate, the method comprising:
- a. selecting a host cell;
  - b. transforming the selected host cell with a recombinant vector, wherein the recombinant vector comprises a nucleic acid sequence encoding a threonine deaminase protein effective to catalyze the conversion of threonine to  $\alpha$ -ketobutyrate, wherein:
 

the encoded leucine residue at amino acid position 447 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine; the encoded leucine residue at amino acid position 481 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine; or the leucine residue at amino acid positions 447 and 481 are independently replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine; and
  - c. obtaining recombinant host cells.
46. (original) A plant, the genome of which comprises a nucleic acid sequence encoding a threonine deaminase protein effective to catalyze the conversion of threonine to  $\alpha$ -ketobutyrate, wherein:
- a. the encoded leucine residue at amino acid position 447 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine;
  - b. the encoded leucine residue at amino acid position 481 is replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine; or
  - c. the leucine residue at amino acid positions 447 and 481 are independently replaced with alanine, isoleucine, valine, proline, phenylalanine, tryptophan, or methionine.